

additional 60 miles are under construction. A variety of designs are used with the HOV lanes in the Seattle area. These include concurrent flow HOV lanes using both the inside and outside lanes, barrier-separated reversible lanes, and arterial street HOV lanes. The potential for converting existing general-purpose lanes to HOV lanes is also being considered.

- Amsterdam, Netherlands. An HOV lane was opened in October of 1993 on Highway A-1 on the east side of Amsterdam. The lane is a reversible-flow facility and is eight kilometers long. Buses and carpools with three or more occupants can use the lane. The facility is open during the morning and afternoon peak-periods.

**Report from the Federal Highway Administration**  
***Jerry W. Emerson, Federal Highway Administration***

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Over the past 30 years, the vehicle miles of travel (VMT) in the United States has almost doubled from one to two million. The Interstate system was developed over this same period, and a great deal of new capacity was added to the roadway system. Even with this additional capacity, traffic congestion has increased significantly in most metropolitan areas.

The Interstate system is virtually complete now and little new capacity is likely to be added. The demand for travel, however, is expected to double again in the next 30 years. HOV facilities represent one approach to addressing this continued increase in travel demand.

There has been a significant increase in HOV facilities over the past 20 years. Prior to 1980, there were less than 100 center-line miles of HOV lanes in operation around the country. Currently, there are around 550 miles. By the end of the decade, some 1,000 miles are anticipated to be in operation. Non-radial HOV facilities appear to represent a major portion of the new lanes.

This appears to be a growing trend which responds to the movement of both residents and jobs to suburban areas.

There is every indication of continued interest in HOV facilities. The reasons for this include the ability of these facilities to move more people in fewer vehicles, while often staying within the existing freeway right-of-way. Implementation of HOV lanes can be accomplished relatively quickly compared to other alternatives, and joint funding is often available to support the planning, design, operation, and evaluation of HOV lanes. At the federal level, this includes funding from both the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). At the state and local levels, funding may be available from highway, transit, and other agencies.

Many provisions of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 encourage the development of HOV facilities. Four sections address HOV lanes in detail. These are the Congestion Mitigation and Air Quality, the Interstate Maintenance, Metropolitan Planning, and the Statewide Planning sections. A number of subsequent regulations have been issued that implement many of these provisions.

The new joint FHWA/FTA planning regulations were issued in the fall of 1993. These require that the results of the six ISTEA-mandated management systems are included in the ongoing statewide and metropolitan planning processes. Consideration of demand reduction strategies, operation analyses, and other factors must be included in these plans. The six required management systems are pavement management, bridge management, safety management, congestion management, public transportation facilities management, and intermodal management. Each of these management plans has specific requirements and timelines for development and implementation. There are also penalties—such as the withholding of 10 percent of a state's highway funds—for non-compliance.

The congestion management system requires states and Metropolitan Planning Organizations (MPOs) to develop systematic programs to enhance the mobility of people and goods, not just vehicles. The congestion management system should be part of the ongoing planning process and should include consideration of all modes and alternatives. The goal is to reduce traffic congestion where it exists now and prevent it from occurring in places where it does not currently exist. Emphasis should be placed on the operation and performance of the existing system. HOV facilities will represent a significant focus of congestion management systems in many areas.

Congestion management plans should identify specific strategies for the efficient use of transportation facilities. Examples may include transportation demand management

(TDM) strategies, operational improvements, incident management techniques, and congestion pricing. In addition to the previously mentioned support for HOV facilities, the ISTEA provided for congestion pricing demonstration projects. Requests for proposals for congestion pricing pilot programs have been issued, and experiments with market pricing strategies and HOV buy-in or pricing could be considered.

Under the ISTEA, support for HOV facilities may be considered using National Highway System (NHS), the Surface Transportation Program (STP), and the Congestion Mitigation and Air Quality (CMAQ) program funds. Authorization of the proposed 159,000 mile NHS is currently being considered by Congress. In conclusion, the ISTEA and subsequent regulations are supportive of HOV facilities. As noted recently by U.S. Department of Transportation Secretary Pena, the goal is not to get more single-occupant vehicles on the system, but rather to encourage more use of all HOV modes.

**Report from the Federal Transit Administration**  
**Ronald Jensen-Fisher, Federal Transit Administration**

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It is a pleasure to have the opportunity to participate in this conference. I will cover three general topics in my comments this morning. First, I will discuss the new planning regulations, including the portion addressing major investment strategies. Second, I will summarize the Advanced Public Transportation Systems (APTS) program, which is FTA's IVHS component. Finally, I will highlight the transportation model improvement program, which applies to travel forecasting models.

As Jerry noted, the new Metropolitan Planning Regulations were issued in October of 1993. These regulations represent a significant change from past practices and will influence corridor and subarea planning. In the past, the approach to planning and the alternatives

considered were often driven by available funding. If highway funds were available, highway alternatives were considered; if transit funding was available, transit alternatives were considered. The flexible funding provisions of the ISTEA really changes this approach.

The new planning regulations further support this change. The regulations require that a full range of reasonable options and alternatives be considered in subareas and corridors. Thus, the focus is no longer on a single mode. Rather it is on multiple modes and combinations of different modes. The regulations further require the involvement of multiple groups in the major investment studies. At the outset of a study, at least five groups must be involved in the initial discussions on the technical content of the study, the range of alternatives to be examined, and other issues. These groups are the state department of transportation, the MPO, the local transit agency, FTA, and FHWA. In addition, the regulations note that resource and environmental permitting agencies and private transit operators should be included early in the planning process.

Although rapid transit is often thought of as rail service, HOV lanes can provide a form of rapid transit. Providing express bus service, which can average 55 mph on an HOV lane, is certainly comparable to LRT or heavy rail service which may average between 22 and 30 mph. HOV facilities have rated very highly in the cost-effectiveness evaluations that have been conducted in many corridors. It is critical that buses, not just automobiles, be considered early in the design stage of HOV facilities. In the past, some HOV lanes have been designed without adequate consideration to buses. This has made the provision of bus service on some facilities difficult. The University of Washington is currently developing guidelines for transit considerations with HOV lanes. These should help enhance transit considerations in the planning, design, and operation of HOV facilities. In the future, FTA discretionary Section 3 funding will be strongly linked to designing HOV facilities with transit in mind.

The provision of information on bus routes and schedules, and ridesharing is critical to encouraging greater use of these modes. There are a number of opportunities today to use a wide range of advanced technologies to enhance the flow of information. FTA's APTS program includes a number of demonstrations focusing on the use of advanced technologies to improve the provision of transit information, as well as enhancing service delivery and management capabilities. Ron Fisher, who is the Director of the office heading this effort, is participating in this conference. There are two sessions focusing on APTS and HOV facilities, and I am sure Ron would be happy to discuss the program in more